

Appl. No. 09/508,031
Amdt. dated August 8, 2003
Reply to Office Action of April 8, 2003

REMARKS/ARGUMENT

This amendment responds to the Office Action of April 8, 2003.

Claims 15-21 and 23-24 are pending in the application with claim 23 having been amended. Entry of this amendment is respectfully requested as it is believed it puts the application in condition for allowance or in better condition for appeal.

Claim 23 has been objected to because "rynchopherol" should be spelled "rhynchopherol". The appropriate amendment has been made

Accordingly, it is requested that the objection to claim 23 be withdrawn.

Claims 15-21 and 23-24 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe et al. (Journal of Chem Ecol (1993), vol. 19, no. 8, pp. 1703-1720), in view of Umano et al. (J. Agric. Food Chem. (1992), vol 40, no. 4, pp. 599-603) and Nagnan et al. (Oleagineux (1992), vol. 47, no. 3, pp. 135-142).

Claim 15 of the present application refers to an insect attracting composition. The composition is useful for controlling insects in plants, wherein the insects are selected from the *Coleoptera* order and the plants are selected from the family *Palmaceae*, sugar cane, banana, tree and agaves. The composition comprises:

- (i) a mixture comprising the following components:
 - (A) an organic compound selected from the group formed by methanol, ethanol, ethyl acetate, and mixtures thereof;

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- (B) a vegetable material obtained from a plant, the plant being selected from plants of the family *Palmaceae*, sugar cane, banana tree and agaves, the vegetable material being ground, fermented and stabilized with a preserving agent; and
 - (C) an organic compound selected from the group formed by isobutyl acetate, acetoin, phenol, guaiacol, menthol, 2-phenylethanol and mixtures thereof; and
- (ii) a pheromone, the pheromone comprising a pheromone which is appropriate for the insects to be controlled.

In a preferred embodiment of the invention, the composition includes ethanol and ethyl acetate (species A), coconut meat and/or sugar cane stabilized with, for example, ascorbic acid (species B), phenol and acetoin (species C) and a pheromone, e.g., rhynchopherol.

The insect attracting composition of claim 15 differs from the composition taught by Jaffe et al. in that the composition of Jaffe et al. does not include phenol or acetoin in the bait composition. Additionally, the bait composition has no preserving agent. Umano et al. and Nagnan et al. do not teach any specific bait composition. Therefore, the insect attracting composition of claim 15 can be distinguished over the bait composition disclosed by Jaffe et al.

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The cited art, apparently, teaches a combination of ethanol, ethyl acetate, acetoin, phenol, sugar cane, and a pheromone. However, the combination of art does not teach stabilizing the sugar cane with a preserving agent such as ascorbic acid, citric acid, or mixtures thereof.

The Examiner has stated that ascorbic acid and citric acid are well known in the art for addition to food-containing compositions. These compounds are used to stabilize the compositions against spoilage. The Examiner has stated that the skilled person in the art would expect that the addition of these acids to a composition containing sugar cane would be a beneficial modification, and therefore the skilled person in the art would be motivated to add the acids to the sugar cane based on the benefits of these acids.

The applicants do not agree with this position of the Examiner. The applicants admit that ascorbic acid and citric acid are well known in the art for addition to food-containing compositions in order to stabilize the compositions against spoilage. However, the composition of the applicants' invention is not a food composition, but a composition for controlling *Coleoptera* insects in plants. In addition, the insect attracting composition of the instant invention includes fermented sugar cane, which is not usually present in food compositions. The preserving agent is added once the vegetable material has been fermented (i.e., the preserving agent is added not for protecting the sugar cane against spoilage).

The technical fields of insect control and foodstuffs are non-analogous. These fields are quite separate from each other. Additionally, the preserving agent is not added for protecting the sugar cane against spoilage. For these reasons, a person of ordinary skill in the art of insect

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control would not have been motivated to add a preserving agent (e.g., ascorbic acid or citric acid) to the fermented sugar cane included within the insect-attracting composition of the claimed invention.

The applicants' invention overcomes problems with insect-control compositions and methods of the prior art. Known vegetable baits combined with pheromones for the target insects exhibit a short bait life. The bait life of these compositions rarely exceeds 15 days and, therefore, constant replacement of the bait is required. This maintenance requirement complicates the treatment of the plants and renders the treatment more expensive.

The applicants' invention also overcomes the problem of known vegetable baits that exhibit irregular results, i.e., a lack of reproducible results due to the heterogeneity of the vegetable substance in the fermentation.

The solution provided by the claimed invention is based on the use of an insect-attracting composition. The composition of claim 15 is useful for controlling *Coleoptera* insects in plants and provides these unexpected results.

The articles cited by the Examiner do not teach or suggest the use of a preserving agent to stabilize ground and fermented parts obtained from plants of the family *Palmaceae*, sugar cane, banana tree and agaves. The use of a preserving agent substantially increases the bait life for at least one month. (See the specification on page 10 at line 8 to page 11 at line 7, particularly, on page 10 at lines 18 through 20 and 27 through 32.) This unexpected result simplifies the implementation of the insect-control method and reduces the cost for implementing such a

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method. The use of a preserving agent in a homogenized bait, such as the bait of the claimed invention, has intimately mixed components in the same container from which the insect-attracting compounds are evaporated. This homogenized bait renders reproducible results.

Additionally, the presence of component (C), i.e., an organic compound emitted in minor quantities during the fermentation of vegetable parts of the palm tree or related plants, appears to enhance the effect of components (A) and (B). This enhanced activity achieves a synergistic effect as demonstrated in Example 1 at Table 1. Effectively, as shown in Table 1, the total capture of insects trapped in all the traps containing the same test substance drastically increases when the insect attracting composition includes the component (C), i.e., compositions identified in Table 1 as (c) and (d)]. In fact:

- (i) in March 1997:
 - the total capture of insects using composition (c) (including components A, B, and C), i.e., 201, is about 2.80 fold of the total capture of insects using composition (a), which includes only component C, or about 1.10 fold of the total capture of insects using composition (b), which includes only components A and C; and
 - the total capture of insects using composition (d), which includes components A, B, and C, i.e., 218, is about 3.03 fold of the total capture of insects using composition (a), which includes only component C, or about

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1.20 fold of the total capture of insects using composition (b), which includes only components A and C; and

(ii) in April 1997:

- the total capture of insects using composition (c), which includes components A, B, and C, i.e., 405, is about 3.40 fold of the total capture of insects using composition (a), which includes only component C, or about 1.30 fold of the total capture of insects using composition (b), which includes only components A and C; and
- the total capture of insects using composition (d), which includes components A, B, and C, i.e., 420, is about 3.53 fold of the total capture of insects using composition (a), which includes only component C, or about 1.35 fold of the total capture of insects using composition (b), which includes only components A and C.

These results show not only the efficacy and stability of the insect attracting composition of the claimed invention for, at least one month, but also the synergistic effect achieved by including component (C) into the claimed composition.

The claimed invention provides a new, non-obvious approach to insect control, which renders a surprising and unexpected effect. The subject matter of claim 15 was not evident to the skilled artisan in insect control from the art cited by the Examiner. Consequently, claims 15 through 21, 23 and 24 are not made obvious by the cited art. It is therefore requested that the

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rejection of claims 15-21 and 23-24 under 35 U.S.C. 103(a) as being unpatentable over Jaffe et al., in view of Umano et al. and Nagnan et al. be withdrawn.

In view of the foregoing, it is submitted that this application is in condition for allowance and an early Office Action to that end is earnestly solicited.

Respectfully submitted,



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